

Docket No.: 245797US2DIV



DAC/JFW

COMMISSIONER FOR PATENTS  
ALEXANDRIA, VIRGINIA 22313

RE: Application Serial No.: 10/733,364

Applicants: Yuichi MASUTANI, et al.

Filing Date: December 12, 2003

For: IPS SWITCHING LIQUID CRYSTAL DISPLAYING  
APPARATUS

Group Art Unit: 2871

Allowed: October 7, 2004

Examiner: Huyen Le Ngo

SIR:

Attached hereto for filing are the following papers:

**Petition Under 37 C.F.R. § 1.181(a)(3);**

**EXHIBIT A (Copy of 7-2-1998 Information Disclosure Statement filing papers for Appl. Serial No. 09/110,076): Date-stamped Filing Receipt, Information Disclosure Statement, PTO-1449 form, Copy of Cited Reference from Row "AR", PTO-1449 form signed by Examiner on 7-14-00;**

**EXHIBIT B (copy of 12-12-2003 Information Disclosure Statement filing papers for present Application: Date-stamped Filing Receipt, Information Disclosure Statement, PTO-1449 form, PTO-1449 form signed by Examiner on 4-30-04.**

Our check in the amount of \_\_\_\_\_ is attached covering any required fees. In the event any variance exists between the amount enclosed and the Patent Office charges for filing the above-noted documents, including any fees required under 37 C.F.R. 1.136 for any necessary Extension of Time to make the filing of the attached documents timely, please charge or credit the difference to our Deposit Account No. 15-0030. Further, if these papers are not considered timely filed, then a petition is hereby made under 37 C.F.R. 1.136 for the necessary extension of time. A duplicate copy of this sheet is enclosed.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,  
MAIER & NEUSTADT, P.C.

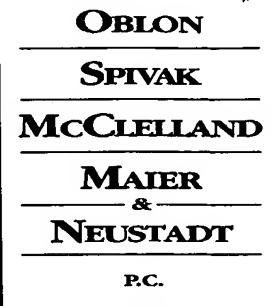
Eckhard H. Kuesters  
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(703) 413-3000 (phone)  
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Scott A. Elchert  
Registration No. 55,149



ATTORNEYS AT LAW



DOCKET NO: 245797US-2DIV

IN THE UNITED STATES PATENT & TRADEMARK OFFICE

IN RE APPLICATION OF

YUICHI MASUTANI, ET AL.

: EXAMINER: HUYEN LE NGO

SERIAL NO: 10/733,364

: GROUP ART UNIT: 2871

FILED: DECEMBER 12, 2003

: ALLOWED: OCTOBER 7, 2004

FOR: IPS SWITCHING LIQUID  
CRYSTAL DISPLAYING APPARATUS

PETITION UNDER 37 C.F.R. §1.181(a)(3)  
TO INVOKE THE SUPERVISORY AUTHORITY OF THE COMMISSIONER

COMMISSIONER FOR PATENTS  
ALEXANDRIA, VIRGINIA 22313

SIR:

This Petition is in response to the Notice of Allowance mailed October 7, 2004.

**Remarks** begin on page 2 of this paper.

REMARKS

This Petition under 37 C.F.R. § 1.181 requests that the Information Disclosure Statements (IDS) filed on December 12, 2003, be fully considered and acknowledged by the Examiner.

On July 2, 1998, Applicants filed an IDS in grandparent Application Serial No. 09/110,076. All the references cited therein were considered by the Examiner, as is evidenced by copies of the IDS papers attached as Exhibit A.

On December 12, 2003, Applicants filed an IDS in the present Application (Exhibit B). The Examiner subsequently returned Applicants' PTO-1449 form with all cited references initialed in acknowledgement of consideration, except one, namely the reference cited on row "AW," which was previously cited and provided<sup>1</sup> in the above-mentioned grandparent Application on PTO-1449 form, row "AR," and acknowledged as being considered.

Applicants have not received an initialed copy of the filed PTO Form-1449 indicating that all of the references submitted in the December 12, 2003 Information Disclosure Statements have been considered, and respectfully request the Examiner to return a copy of the PTO-1449 form, filed in the present Application on December 12, 2004, fully initialed in acknowledgement of consideration.

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<sup>1</sup> The requirements of 37 C.F.R. 1.98(d)(1) and (2) have been met; and, therefore, no copies of the references cited in the IDS filed in the present Application on December 12, 2004 were provided.

Although Applicants do not believe that any fee is required for the present petition, any required fee should be charged the undersigned attorneys account no. 15-0030.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,  
MAIER & NEUSTADT, P.C.



Eckhard H. Kuesters  
Attorney of Record  
Registration No. 28,870

Scott A. Elchert  
Registration No. 55,149

Customer Number  
**22850**

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(OSMMN 06/04)

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## EXHIBIT A

PP/JF

O.S.&M. File No. 0057-2317-2 By MJS/mscSerial No. NEW APPLICATIONIn the Matter of the Application of Yasunori NIWANO, et al.For IPS LIQUID CRYSTAL DISPLAYING APPARATUS

The following has been received in the U.S. Patent Office on the date stamped hereon:

40 pps. Specification & 8 Claims/Drawings 28 Sheets  
 Combined Declaration, Petition & Power of Attorney (4 pages)  
 List of Inventors' Names and Addresses  
 Notice of Priority;  Priority Doc. (1)  
 Check for \$ 790.00;  Dep. Acct. Order Form  
 Assignment        pages/PTO-1595  
 Letter to Official Draftsman  
 Letter Requesting Approval of Drawing Changes  
 Drawings        sheets  
 Letter  Fee Transmittal  
 Amendment  
 Information Disclosure Statement;  PTO-1449  
 Cited References ( 4 )  
        Search Report  
 Statement of Relevancy  
 IDS/Related/List of Related Cases  
 Restriction Response  Election Response  
 Rule 132 Declaration  
 Petition  
 Notice of Appeal  
 Brief  
 Issue Fee Transmittal  
 White Advance Serial No. Postcard  
 Certified Statement Re Filing in Foreign Language

Rev. 4/98

Due: 10/16/98



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Form PTO 1449  
(Modified)U.S. DEPARTMENT OF COMMERCE  
PATENT AND TRADEMARK OFFICE

ATTY. DOCKET NO.

0057-2317-2

O I P E

DEC 14 2004

SERIAL NO.

09/110,076  
NEW APPLICATIONLIST OF REFERENCES CITED BY APPLICANT  
(Use Several Sheets if Necessary)

APPLICANT

Yasunori NIWANO, et al.

FILING DATE

GROUP

HEREWITH

2871

## U.S. PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB CLASS	FILING DATE IF APPROPRIATE
	AA						
	AB						
	AC						
	AD						
	AE						
	AF						
	AG						
	AH						
	AI						
	AJ						
	AK						

## FOREIGN PATENT DOCUMENTS

		DOCUMENT NUMBER	DATE	COUNTRY	TRANSLATION
					YES NO
HLN	AL	9-5793	1/10/97	Japan (with Brief Explanation)	_____ X
HLN	AM	7-36058	2/7/95	Japan (with Brief Explanation)	_____ X
HLN	AN	7-306417	11/21/95	Japan (with Brief Explanation)	_____ X
	AO				
	AP				

## OTHER REFERENCES (Including Author, Title, Date, Pertinent Pages, Etc.)

HLN	AR	K. SAIGUSA, et al., "Display Properties of A Wide-Viewing-Angle In-Plane-Switching TFT-LCD," No. 22 of Liquid Crystal Conference 1967, Pgs. 311-312.
	AS	
	AT	

EXAMINER

DATE CONSIDERED

7/14/07

\*EXAMINER: Initial if reference is considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.



EXHIBIT B

OSMM&N File No. 245797US2DIV

Serial No. New DIV Application

In the matter of the Application of: Yasunori NIWANO, et al.

For: IPS LIQUID CRYSTAL DISPLAYING APPARATUS

Dept.: E/M

By: EHK/KDP/dmr

**Due Date: December 12, 2003**

The following has been received in the U.S. Patent Office on the date stamped hereon:

- 40 pp. Specification 8 Claims/Drawings 28 Sheets and  
3 Pages Application Data Sheet
- Combined Declaration, Petition & Power of Attorney 4 Pages (copy)
- Utility Patent Application Transmittal
- Request for Priority
- Credit Card Form for \$770.00
- Dep. Acct. Order Form
- Fee Transmittal Form
- Preliminary Amendment
- Information Disclosure Statement
- PTO-1449
- White Advance Serial Number Card

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**BEST AVAILABLE COPY**



**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

IN RE APPLICATION OF: Yasunori NIWANO, et al.

SERIAL NO: New DIV Application

GAU:

FILED: Herewith

EXAMINER:

FOR: IPS LIQUID CRYSTAL DISPLAYING APPARATUS

**INFORMATION DISCLOSURE STATEMENT UNDER 37 CFR 1.97**

COMMISSIONER FOR PATENTS  
ALEXANDRIA, VIRGINIA 22313

SIR:

Applicant(s) wish to disclose the following information.

**REFERENCES**

- The applicant(s) wish to make of record the references listed on the attached form PTO-1449. Copies of the listed references were provided in previously filed application nos. 10/200,762, filed July 24, 2002 and 09/110,076, filed July 2, 1998.
- A check or credit card payment form is attached in the amount required under 37 CFR §1.17(p).

**RELATED CASES**

- Attached is a list of applicant's pending application(s) or issued patent(s) which may be related to the present application. A copy of the patent(s), together with a copy of the claims and drawings of the pending application(s) is attached along with PTO 1449.
- A check or credit card payment form is attached in the amount required under 37 CFR §1.17(p).

**CERTIFICATION**

- Each item of information contained in this information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this statement.
- No item of information contained in this information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application or, to the knowledge of the undersigned, having made reasonable inquiry, was known to any individual designated in 37 CFR §1.56(c) more than three months prior to the filing of this statement.

**DEPOSIT ACCOUNT**

- Please charge any additional fees for the papers being filed herewith and for which no check or credit card payment is enclosed herewith, or credit any overpayment to deposit account number 15-0030. A duplicate copy of this sheet is enclosed.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,  
MAIER & NEUSTADT, P.C.

Customer Number

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(OSMMN 05/03)  
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Eckhard H. Kuesters  
Registration No. 28,870

Katherine D. Pauley  
Registration No. 50,607

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OFFICE

Form PTO 1449 (Modified)		U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE		ATTY DOCKET NO. 245797US2DIV		SERIAL NO. New DIV Application	
LIST OF REFERENCES CITED BY APPLICANT				APPLICANT Yasunori NIWANO, et al.			
				FILING DATE Herewith		GROUP	
<b>U.S. PATENT DOCUMENTS</b>							
EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB CLASS	FILING DATE IF APPROPRIATE
	AA	5796448	08/1998	KIM			
	AB	5835169	11/1998	KWON, ET AL.			
	AC	5995182	11/1999	WATANABE, ET AL.			
	AD	6069678	05/2000	SAKAMOTO, ET AL.			
	AE	6452656	09/2002	NIWANO, ET AL.			
	AF	5852485	12/1998	SHIMADA, ET AL.			
	AG	5907379	05/1999	KIM, ET AL.			
	AH	5949511	09/1999	PARK			
	AI	5977562	11/1999	HIRAKATA, ET AL.			
	AJ	6040887	03/2000	MATSUYAMA, ET AL.			
	AK	6069678	05/2000	SAKAMOTO, ET AL.			
	AL	6072554	06/2000	SATO			
	AM						
	AN						
<b>FOREIGN PATENT DOCUMENTS</b>							
		DOCUMENT NUMBER	DATE	COUNTRY	TRANSLATION		
	AO	40,931,972A	12/1997	JAPAN	YES	NO	
	AP	9-5793	1/10/97	JAPAN			
	AQ	7-36058	2/7/95	JAPAN			
	AR	7-306417	11/21/95	JAPAN			
	AS						
	AT						
	AU						
	AV						
<b>OTHER REFERENCES (Including Author, Title, Date, Pertinent Pages, etc.)</b>							
	AW	K. SAIGUSA, et al., "Display Properties of a Wide-Viewing-Angle In-Plane-Switching TFT-LCD," No. 22 of Liquid Crystal Conference 1997, pgs. 311-312					
	AX						
	AY						
	AZ					<input type="checkbox"/> Additional References sheet(s) attached	
Examiner				Date Considered			
*Examiner: Initial if reference is considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.							

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DEC 14 2004  
U.S. PATENT AND TRADEMARK OFFICE

SHEET 1 OF 1

Form PTO 1449 (Modified)		U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE		ATTY DOCKET NO. 245797US2DIV	SERIAL NO. New DIV Application		
LIST OF REFERENCES CITED BY APPLICANT		APPLICANT Yasunori NIWANO, et al.					
		FILING DATE Herewith		GROUP			
U.S. PATENT DOCUMENTS							
EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB CLASS	FILING DATE IF APPROPRIATE
HN	AA	5796448	08/1998	KIM			
	AB	5835169	11/1998	KWON, ET AL.			
	AC	5995182	11/1999	WATANABE, ET AL.			
	AD	6069678	05/2000	SAKAMOTO, ET AL.			
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	AH	5949511	09/1999	PARK			
	AI	5977562	11/1999	HIRAKATA, ET AL.			
	AJ	6040887	03/2000	MATSUYAMA, ET AL.			
	AK	6069678	05/2000	SAKAMOTO, ET AL.			
HN	AL	6072554	06/2000	SATO			
	AM						
	AN						
FOREIGN PATENT DOCUMENTS							
		DOCUMENT NUMBER	DATE	COUNTRY	TRANSLATION		
HN	AO	40,931,972A	12/1997	JAPAN	YES		NO
↓	AP	9-5793	11/10/97	JAPAN			
↓	AQ	7-36058	2/7/95	JAPAN			
HN	AR	7-306417	11/21/95	JAPAN			
	AS						
	AT						
	AU						
	AV						
OTHER REFERENCES (Including Author, Title, Date, Pertinent Pages, etc.)							
	AW	K. SAIGUSA, et al., "Display Properties of a Wide-Viewing-Angle In-Plane-Switching TFT-LCD," No. 22 of Liquid Crystal Conference 1997, pgs. 311-312					
	AX						
	AY						
	AZ	<input type="checkbox"/> Additional References sheet(s) attached					
Examiner <i>Yasunori</i>		Date Considered <i>4/30/04</i>					
*Examiner: Initial if reference is considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.							

## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

IN RE APPLICATION OF: Yasunori NIWANO, et al.

GROUP ART UNIT:

SERIAL NUMBER: NEW APPLICATION

EXAMINER:

FILED: HEREWITH

FOR: IPS LIQUID CRYSTAL DISPLAYING APPARATUSINFORMATION DISCLOSURE STATEMENT UNDER 37 C.F.R. 1.97

Assistant Commissioner for Patents  
 Washington, D.C. 20231

Sir:

Applicant(s) wish to disclose the following information.

REFERENCES

■ The Applicant(s) wish to make of record the references listed on the attached Form PTO-1449. Copies of the listed references are attached, where required, as are either statements of relevancy or any readily available English translations of pertinent portions of any non-English language references.

A check is attached in the amount required under 37 CFR § 1.17(p).

RELATED CASES

Attached is a list of applicant's pending applications or issued patents which may be related to the present application. A copy of the patent(s) is attached along with PTO 1449.

A check is attached in the amount required under 37 CFR § 1.17(p).

CERTIFICATION

The undersigned certifies that

each item of information contained in this information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this statement.

no item of information contained in this information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application or, to the knowledge of the undersigned, having made reasonable inquiry, was known to any individual designated in 37 CFR § 1.56(c) more than three months prior to the filing of this statement.

PETITION

Applicant(s) hereby request consideration of the attached information. A check is attached in the amount of the Petition fee required under 37 CFR § 1.17(i)(1).

DEPOSIT ACCOUNT

■ Please charge any additional fees for the papers being filed herewith and for which no check is enclosed herewith, or credit any overpayment to deposit account No. 15-0030. A duplicate copy of this sheet is enclosed.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,  
MAIER & NEUSTADT, P.C.**COPY**Marvin J. Spivak  
Attorney of Record  
Registration No. 24,913

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 1755 Jefferson Davis Highway  
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 Fax No. (703) 413-2220  
 (OSMMN 7/97)



Form PTO 1449 U.S. DEPARTMENT OF COMMERCE  
(Modified) PATENT AND TRADEMARK OFFICE

ATTY. DOCKET NO.

SERIAL NO.

NEW APPLICATION

DEC 14 2004

LIST OF REFERENCES CITED BY APPLICANT  
(Use Several Sheets if Necessary)

APPLICANT

Yasunori NIWANO, et al.

FILING DATE

GROUP

HEREWITH

## U.S. PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB CLASS	FILING DATE IF APPROPRIATE
	AA						
	AB						
	AC						
	AD						
	AE						
	AF						
	AG						
	AH						
	AI						
	AJ						
	AK						

## FOREIGN PATENT DOCUMENTS

		DOCUMENT NUMBER	DATE	COUNTRY	TRANSLATION
					YES      NO
	AL	9-5793	1/10/97	Japan (with Brief Explanation)	<input type="checkbox"/> X
	AM	7-36058	2/7/95	Japan (with Brief Explanation)	<input type="checkbox"/> X
	AN	7-306417	11/21/95	Japan (with Brief Explanation)	<input type="checkbox"/> X
	AO				
	AP				

## OTHER REFERENCES (Including Author, Title, Date, Pertinent Pages, Etc.)

AR	K. SAIGUSA, et al., "Display Properties of A Wide-Viewing-Angle In-Plane-Switching TFT-LCD," No. 22 of Liquid Crystal Conference 1967, Pgs. 311-312.
AS	
AT	

EXAMINER

DATE CONSIDERED

\*EXAMINER: Initial if reference is considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

Display Properties of a Wide-Viewing-Angle In-Plane-Switching TFT-LCD

In this Publication, "Display Properties of a Wide-Viewing-Angle In-Plane-Switching TFT-LCD" No. 22 of Liquid Crystal Conference 1967, Page 311 to 312, there is described a TFT- LCD in which common electrode and pixel electrode are provided on top layer by the use of staggered structure TFT.

(ホシデン・開発技研) ○三枝 和彦、福本 雅一、守屋 光雄、  
稻田 利弥、中川 卓宣、湯川 順三、  
雲梯 隆夫、鶴飼 育弘、松本 正一

## DISPLAY PROPERTIES OF A WIDE-VIEWING-ANGLE IN-PLANE-SWITCHING TFT-LCD

K. Saigusa, M. Fukumoto, M. Moriya, T. Inada, T. Nakagawa, T. Yukawa, T. Unate, Y. Ukai, and S. Matsumoto  
Research & Development Center, Hosiden Corporation, Kobe-City, Japan

Display properties of our developed wide-viewing-angle 14.5-inch-diagonal IPS a-Si TFT-LCD are presented, including the viewing angle, contrast, color shift, gray-scale inversion characteristics.

## 1. はじめに

液晶ディスプレイは視角依存性を有し、画面の大型化や表示品位向上の要求に伴い、その改善が急務である。我々は広視野角化を目的として、IPS(In-Plane-Switching)形LCD<sup>1-3)</sup>に注目し、そのパネル構成や部材が電気光学特性に及ぼす影響を検討してきた。<sup>4,5)</sup> 本報では、これまでの検討結果を基に開発した14.5インチ型XGA対応IPS形a-Si TFT-LCD(以下、IPS形TFT-LCDと呼ぶ)の電気光学特性と表示性能について報告する。

## 2. 14.5インチ型XGA対応IPS形a-Si TFT-LCDの電気光学特性

## (1) IPS形TFT-LCDの構造

図1に、IPS形TFT-LCDの構造を示す。a-Si TFTはトップゲート形であり、ゲート、画素共通の各電極は、金属層からなるソース/ドレインラインと画素電極の間に共通電極が配置されている。

## (2) IPS形TFT-LCDの仕様

表1にIPS形TFT-LCDの仕様を示す。表示色は26万色(64階調)、駆動電圧はTN形と同じ5Vである。コントラスト比は最大で100以上、応答速度は60ms(tr+td)である。

## (3) IPS形TFT-LCDの表示特性

コントラストの視角特性については、図2の等コントラスト曲線が示すとおり、上下左右70°で10以上のコントラスト比を実現している。階調表示の再現性についても、図3に示すように上下左右70°において反転は見られない(16階調)。図4に、視野角(θ=0°～60°、φ=0～360°)による色の変化を示す。TN形に比べ、色の変化は極めて小さい。液晶セルのリターン率を最適化することで、色の変化はさらに改善できる(R(1) < R(2))。

## 3. 総まとめ

今回開発したIPS形TFT-LCDは、従来のTN形に比べて優れた視野角特性を示し、画面の大型化や表示品位向上の要求に対し、まさに応え得るものと言える。

## 参考文献

- 1) R. Soref: J. Appl. Phys., 45, 5446 (1974).
- 2) R. Kiefer, B. Weber, F. Windscheid, and G. Baur: JAPAN DISPLAY '92, 547 (1992).
- 3) K. Kondo, K. Kinugasa, N. Konishi and H. Kawakami: SID 96 DIGEST, P. 81 (1996).
- 4) 守屋、瀬山、松本、青木: 第21回液晶討論会、2A07, P. 154 (1995).
- 5) 松本、守屋、瀬山: 日本学術振興会 第142委員会 第65回合同研究会 資料、P. 37 (1996).

さいぐさ・ふくもと・もりや・いみだ・なかがわ・ゆかわ・うなて・うかい・まつもと

Table I. Specifications of 14.5-inch-diagonal IPS a-Si TFT-LCD

Display area	14.5 Inch diagonal
Number of pixels	1024(H)×RGB×768(V) (XGA)
Dot size	96 [μm]×260 [μm]
Number of colors	262,144 (64 gray scales)
Display mode	Normally black IPS nematic
Viewing angles	Vertical: 140° Horizontal: 140° (CR>10)
Contrast ratio	>100 (Max)
Driving voltage	5 [V]
Response time	60 [ms] (tr+td)

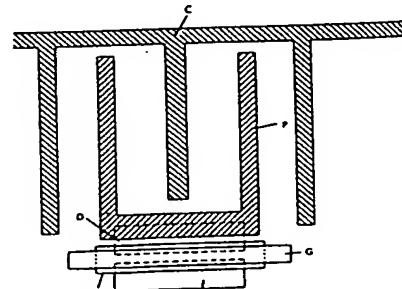
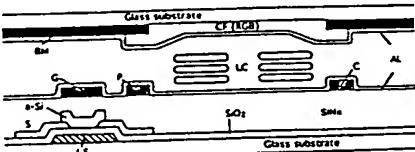


FIG. I Schematic structure of 14.5-inch-diagonal IPS a-Si TFT-LCD

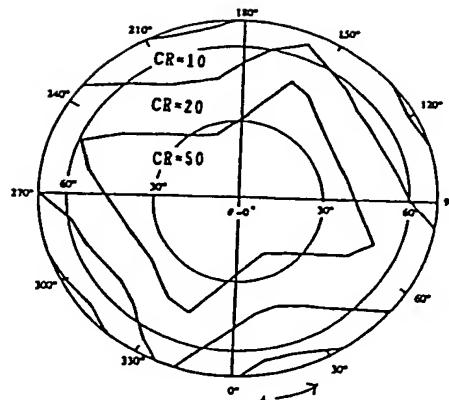


FIG.2  
Iso-contrast chart of  
14.5-inch-diagonal  
IPS a-Si TFT-LCD

FIG.3  
Gray-scale inversion region  
of 14.5-inch-diagonal IPS  
a-Si TFT-LCD

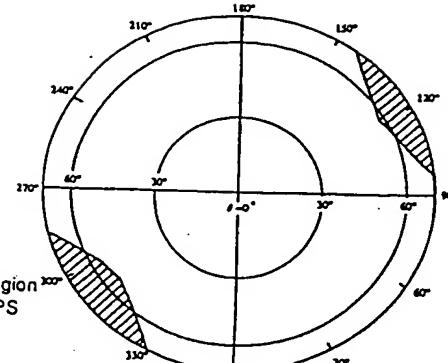


FIG.4  
Color shift of 14.5-inch-diagonal  
IPS a-Si TFT-LCD

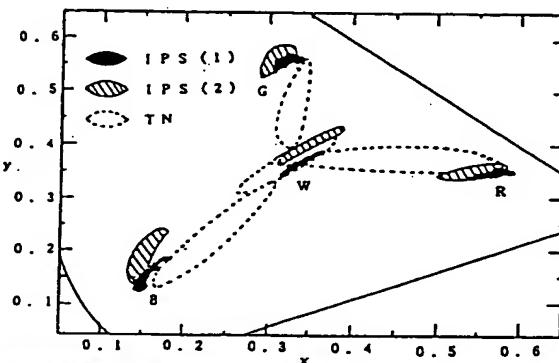


FIG.5  
Photos of 64-gray-scale video image displayed  
with 14.5-inch-diagonal IPS a-Si TFT-LCD

